

CLAIMS

1. Soluble branched polymers of glucose containing essentially no  $\beta$ -glucosidic bonds, having:

- 5        -between 2.5 and 10% of  $\alpha$ -1,6 glucosidic bonds,  
      -a very low or zero tendency to retrograde in aqueous solution, determined according to a test A,  
      -a Mw determined according to a test C at a median value of the molecular weight distribution profile  
10       lying between  $10^4$  and  $10^8$  daltons, and  
      -a reducing sugar content of at most 9%.

2. Soluble branched polymers of glucose according to Claim 1, having a viscosity determined according to a  
15       test B of at most 5,000 cP.

3. Branched polymers of glucose according to one or other of Claims 1 and 2, having:

- between 2.5 and 5% of  $\alpha$ -1,6 glucosidic bonds,  
20       -a Mw determined according to a test C at a median value of the molecular weight distribution profile lying between  $10^5$  and  $10^6$  daltons,  
      -a reducing sugar content of at most 1%.

25       4. Branched polymers of glucose according to one or other of Claims 1 and 2, having:

- between 5 and 10% of  $\alpha$ -1,6 glucosidic bonds,  
      -a Mw determined according to a test C at a median value of the molecular weight distribution profile  
30       lying between  $10^7$  and  $10^8$  daltons, and

-a reducing sugar content of at most 1%.

5. Process for manufacture of branched polymers of glucose essentially containing no  $\beta$ -glucosidic bonds according to any one of Claims 1 to 4, wherein:

- a) an aqueous solution of starch or of starch derivative of dry matter of at least 1% by weight, preferably 1 to 50% by weight, is subjected to a temperature greater than 130°C, preferably lying between 140 and 150°C, under a pressure of more than 3.5 bars, preferably lying between 4 and 5 bars, for at least 2 mins, preferably for 2 to 5 mins,
- b) the starch or starch derivative thus obtained is treated with 50 to 2,000 units of purified branching enzyme at a temperature lying between 25 and 50°C, preferably at a temperature of 30°C, for a duration from 10 mins to 24 hrs, and
- c) the branched polymers of glucose thus obtained are collected.

6. Process for manufacture of soluble branched polymers of glucose according to Claim 5, wherein the branching enzyme is selected from the group consisting of glycogen branching enzymes, starch branching enzymes and any mixtures of these enzymes.

7. Process for manufacture of soluble branched polymers of glucose according to one or other of Claims 5 and 6, wherein the branching enzyme is extracted from organisms and/or from microorganisms selected from the group consisting of higher plants, yeasts, bacteria and

unicellular algae, and is preferably extracted from unicellular algae.

8. Process for manufacture of soluble branched  
5 polymers of glucose according to Claim 7, wherein the  
branching enzyme extracted from algae is obtained by  
isolation from a genetically modified organism capable of  
expressing the said enzyme.

9. Compositions intended for use in industries, especially Paper-Cardboard, Textiles, Pharmaceuticals, Cosmetics and in particular Food, containing branched polymers of glucose according to any one of Claims 1 to 4 or capable of being obtained according to one of Claims 5 to 8.

5 to 8.